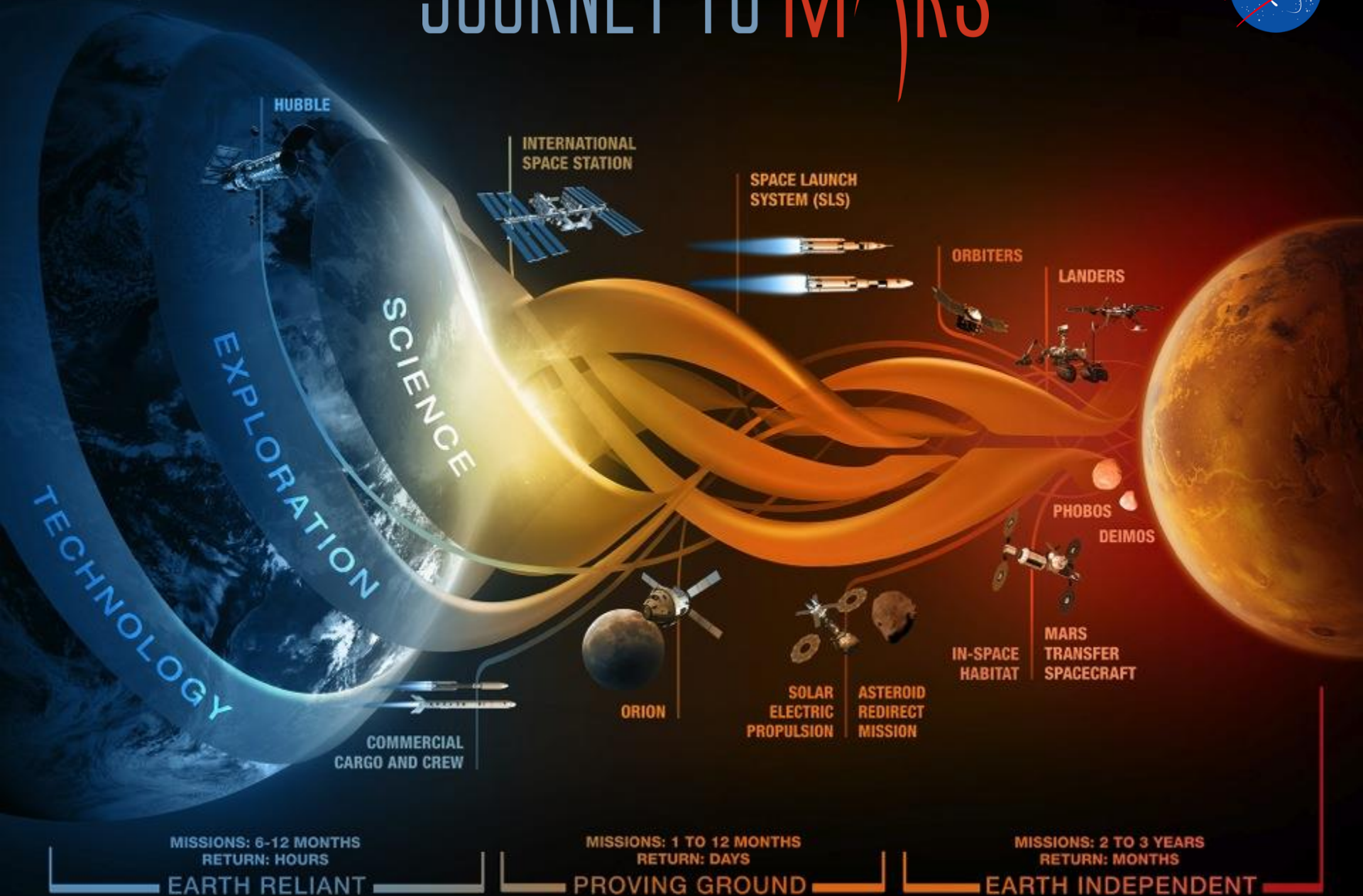




# **S**mall **B**usiness **I**nnovation **R**esearch **S**mall Business **T**echnology **T**Ransfer

**Bob Jones**  
**NASA Management Office**  
**August 3<sup>rd</sup>, 2016**

# JOURNEY TO MARS





# Starts Here on Earth



# SBIR Assists in Emergency Communication Systems



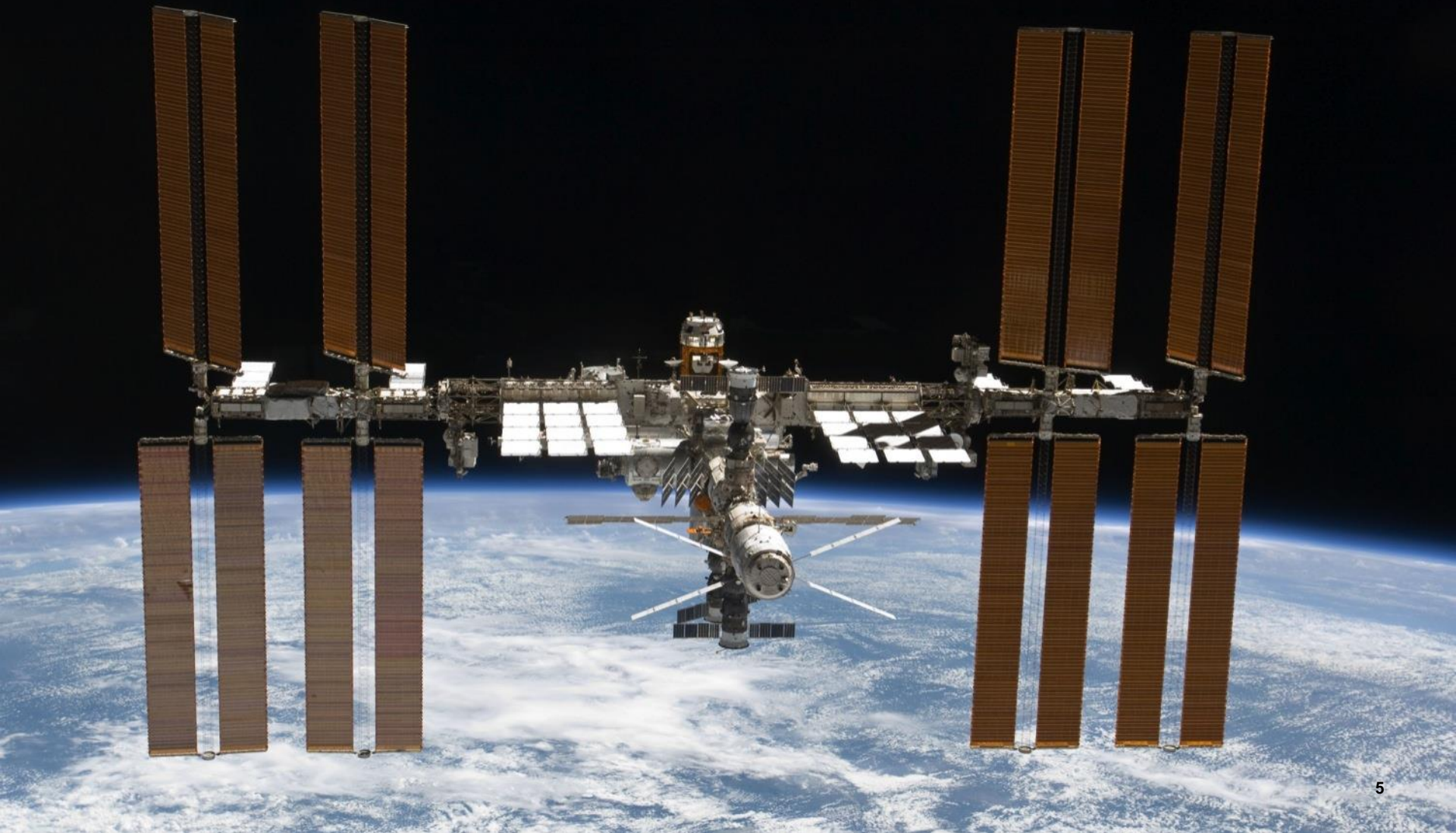
Popular with U.S. military and intelligence agencies, the systems have been used in missile ranges, severe weather, and emergency response situations.

*SRS TECHNOLOGIES*





# SBIR Farms & Manufactures in Space



# Farming in Space



Aboard the International Space Station, there is a deployable fresh-food production system called VEGGIE. Astronauts use the system to grow red romaine lettuce and in the summer of 2015 sampled the first ever space-grown crop.

*ORBITEC*



# First Zero-Gravity 3D Printer



Made In Space's Zero-G Printer was launched to the ISS in September 2014, making it the first company to manufacture in zero gravity. This will allow for lighter payloads in launch and real time manufacturing of necessities such as tools for repairs.

*MADE IN SPACE*



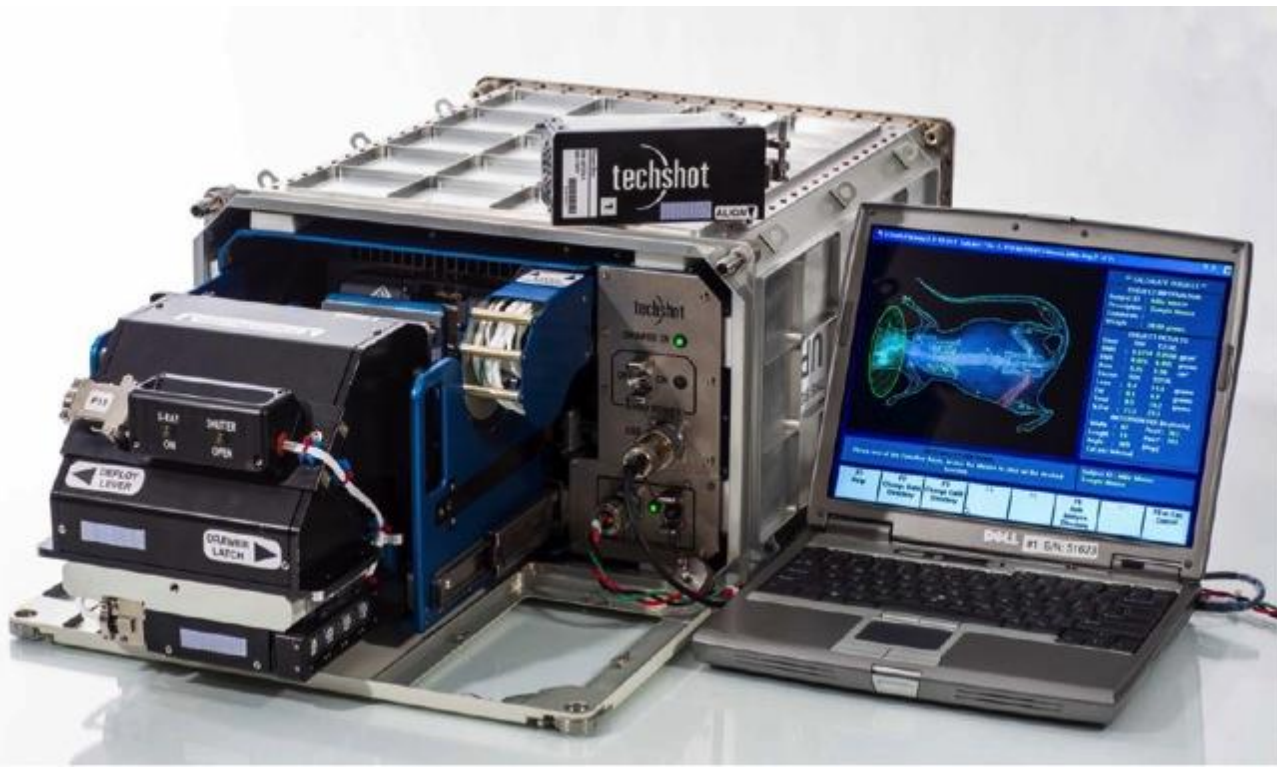


# Bone Desitometer



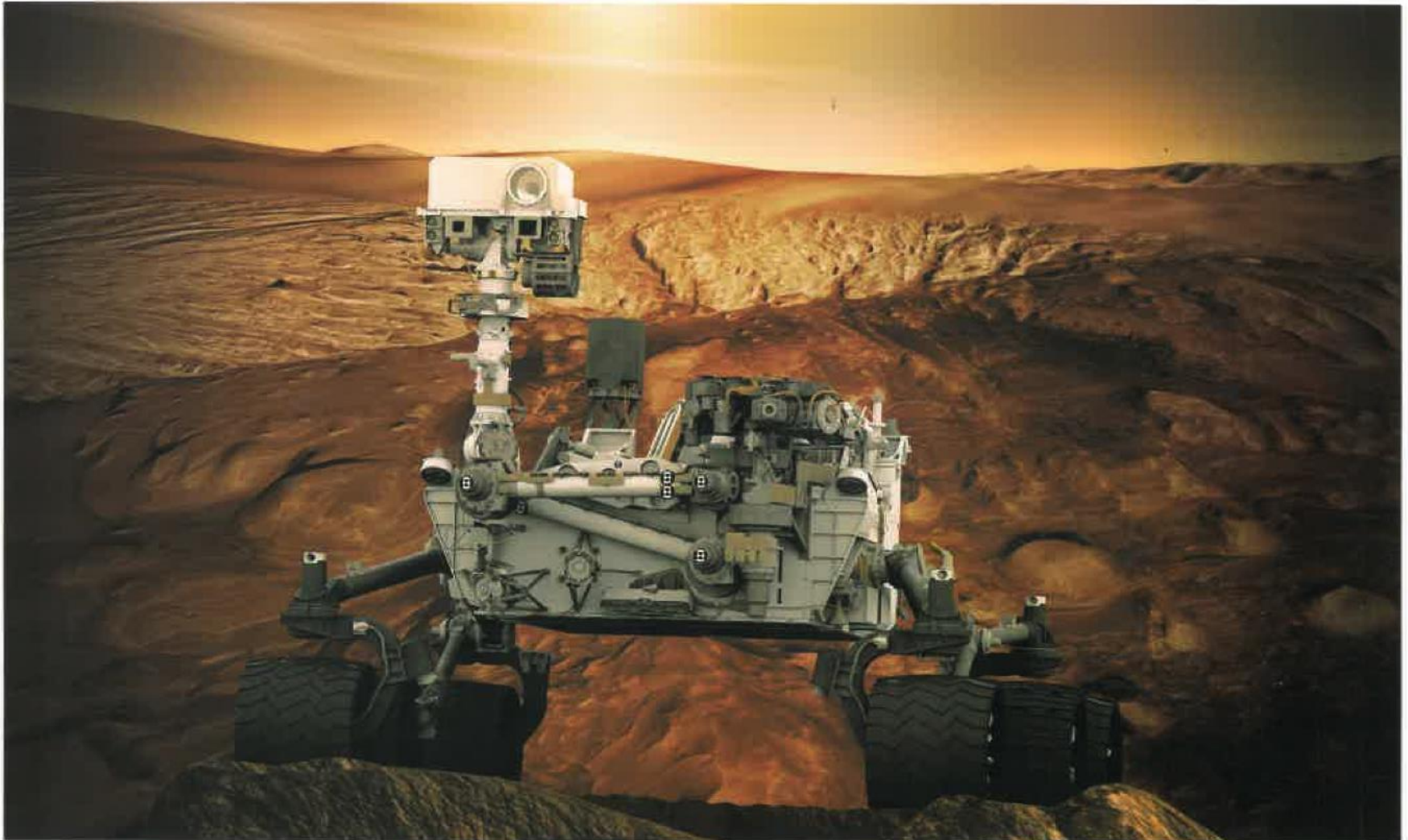
The first x-ray machine flew up to the ISS in 2014. It has allowed NASA to study bone density in rats and can potentially be used to assess the extent of bone injuries in astronauts.

*Techshot, Inc.*





# SBIR Lands on Mars



# SBIR Technologies on Curiosity Rover

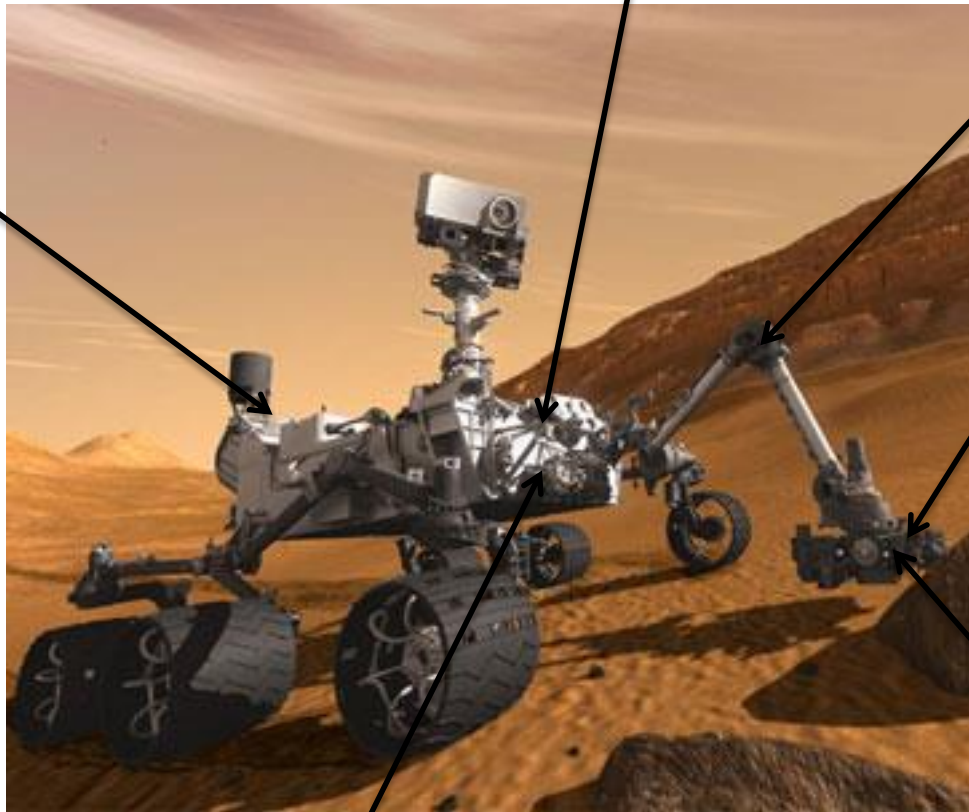


## Yardney Technical Products

Lithium ion  
batteries

## Creare

Space-qualified vacuum pump



## Starsys Research, Boulder, CO

Gearboxes for robotic arm

## Honeybee Robotics

Dust removal tool

## inXitu

Chemistry  
and Mineralogy  
experiment (CheMin)  
instrument

## GrammaTech

Software for rover operations



# Program Background



- NASA's SBIR and STTR programs have awarded over \$3.3B to research-intensive American small businesses to date.
- Engineers and scientists from over 12,000 Firms in all 50 States, DC and Puerto Rico have participated
- On average each year 1,700 NASA scientists and engineers support the program performing technical reviews

# Eligibility Requirements



## Small Business Innovation Research (SBIR)

- 1 Organized for-profit U.S. business
- 2 At least 51% U.S. owned by individuals and independently operated
- 3 500 or fewer employees
- 4 PI's primary employment with small business during project
- 5 Intellectual Property Agreement

## Small Business Technology Transfer (STTR)

- 1 Formal Cooperative R&D Effort with a U.S. Research Institution
- 2 Minimum 40% by small business, 30% by U.S. Research Institution
- 3 Small business is Prime, PI can be from SBC or Research Institution
- 4 Other SBIR Requirements Apply



# Structure of the Programs



## Phase I: **Concept**

- Award Guideline: \$125K
- Duration: 6 months (SBIR)  
12 months (STTR)



## Phase II: **Full Research, R&D to Prototype**

- Award Guideline: \$750K
- Duration: 24 months
  - Phase II-E → 1:1 Matching up to \$150K
  - Phase II-X → 2:1 Matching NASA up to \$500K



## Phase III: **Commercialization/Infusion**

- Non-SBIR/STTR funds
  - Contract from NASA program, other agency, prime contractor

# 2016 At a Glance



## Annual Award Budget

- Currently, SBIR is 3.0% of R&D. In 2017, NASA will increase the SBIR investment to 3.2%
- STTR = .45% of R&D
- 2016 ~ \$200M

## Awards:

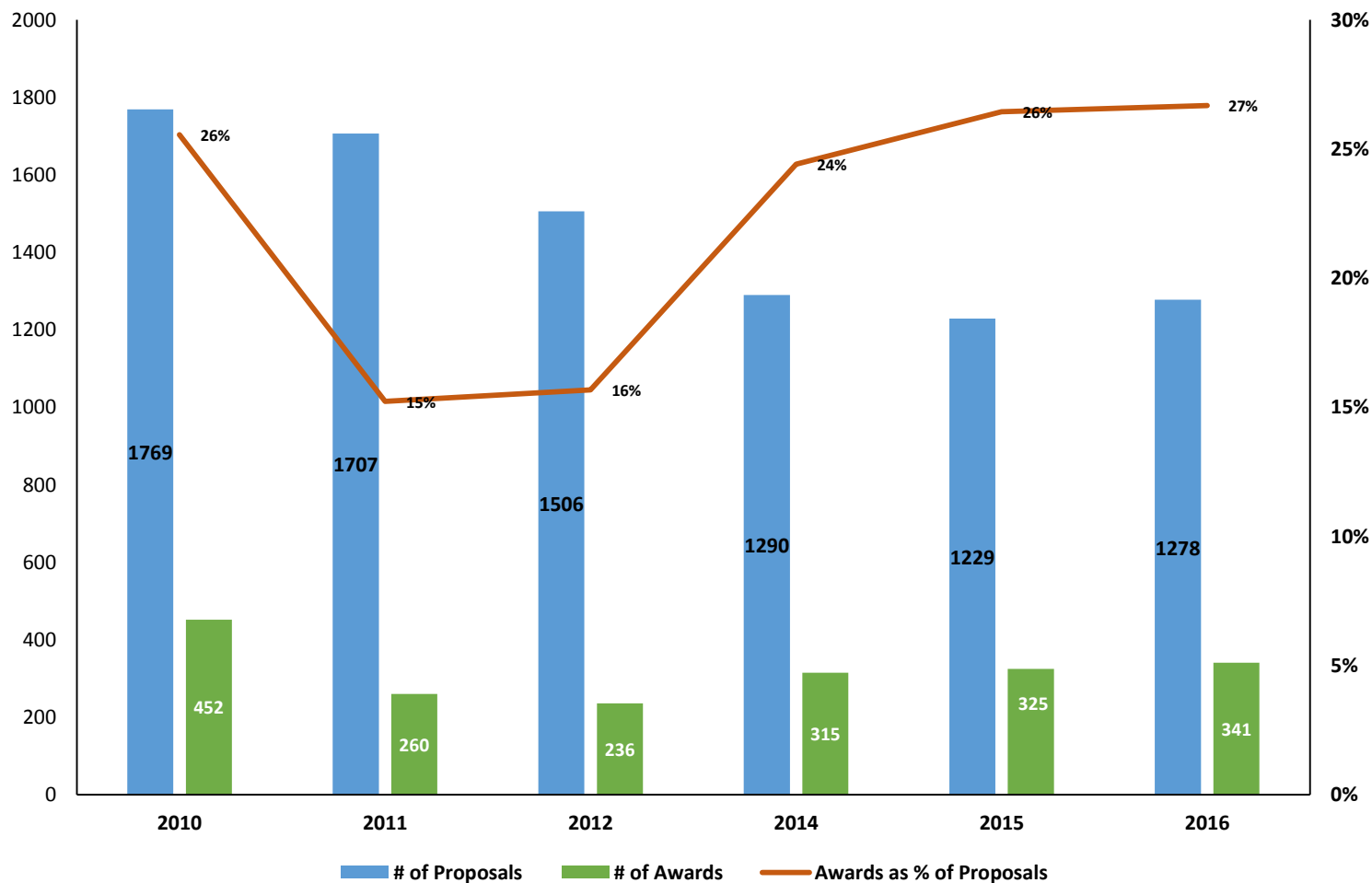
- SBIR Awards: 341 Phase I and 137 Phase II
- STTR Awards: 58 Phase I; Phase II Awards will be selected in 4QFY16



# SBIR Proposals vs. Awards



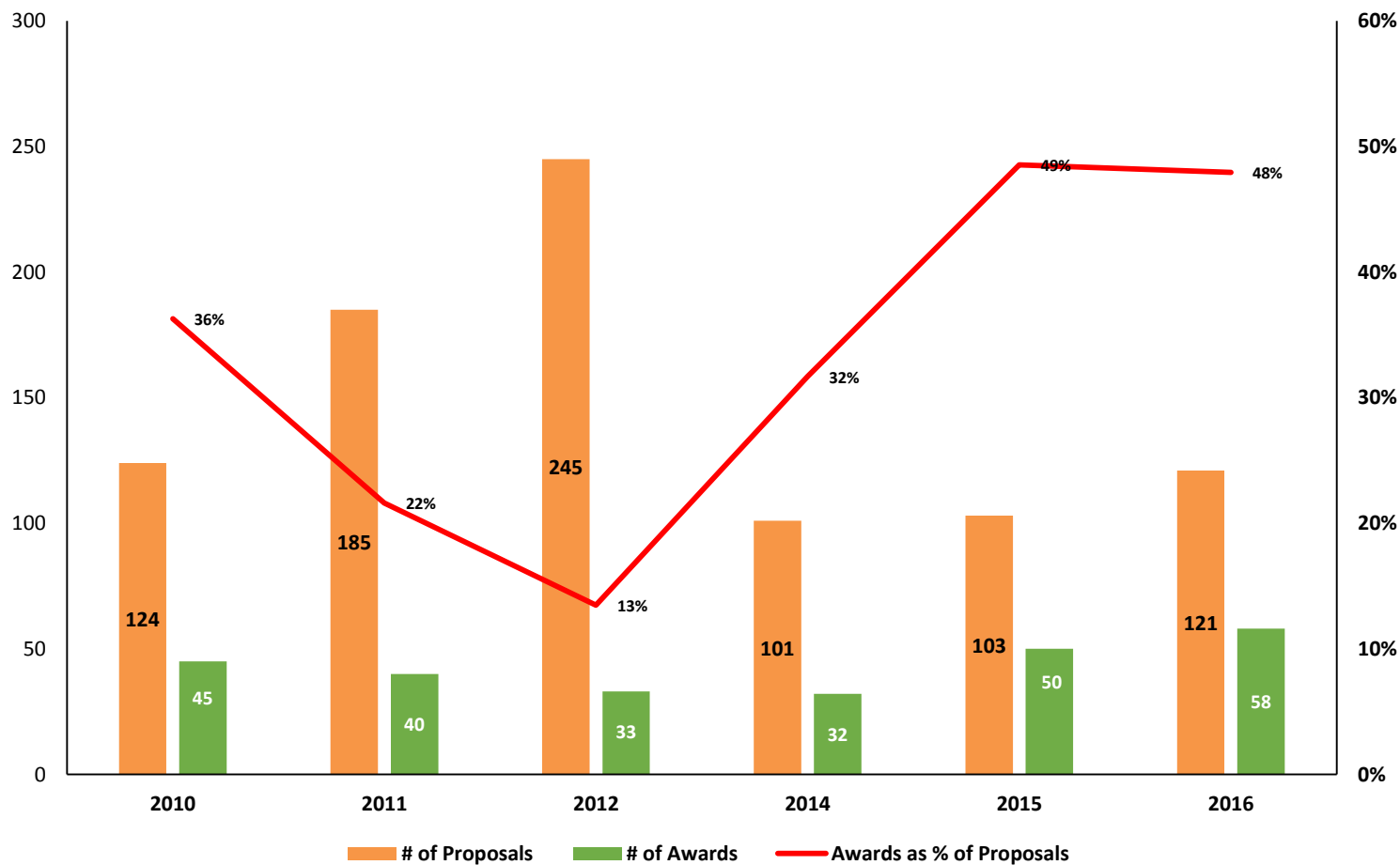
## Phase 1 Proposals vs. Awards for SBIR



# STTR Proposals vs. Awards



## Phase 1 Proposals vs. Awards for STTR



# NASA SBIR/STTR Website

www.sbir.nasa.gov



**NASA SBIR/STTR**  
Small Business Innovation Research / Small Business Technology Transfer

Site • Solicitations • Awards

HOME • ABOUT SBIR/STTR • SOLICITATIONS • SCHEDULE & AWARDS • HANDBOOKS • MULTIMEDIA • CONTACT US

UPCOMING EVENT  
TECHNOLOGIES  
IN THE NEWS  
RESEARCH OPPORTUNITIES  
FRAUD, WASTE & ABUSE

**In the News**  
**NASA and Star Wars: The Connections Are Strong in This One**  
Check out some of the real life technologies NASA is using in the exploration of our universe.  
[Read More](#)

**Proposers**  
SBIR/STTR Basics  
SBIR/STTR Schedule  
Participation Guide  
SBIR/STTR Firms Library  
Model Contract  
Training Resources  
FAQs

**Awardees**  
SBIR/STTR Schedule  
SBIR/STTR Firms Library  
Additional Sources of Assistance  
Awardee Firm's EHB  
Training Resources  
FAQs

**Demographics Data**  
State-based Statistics  
Award Search  
FY 2012 Economic Impact Report

Access the PY 2016  
Solicitations  
(Next release date  
\*November 2016)

Information for NEW  
firms available under  
“Proposers”

SBIR/STTR program  
analytics



# Solicitations



Visit [sbir.nasa.gov](https://sbir.nasa.gov) for  
prior year solicitations



The screenshot shows the NASA SBIR/STTR 2016 Program Solicitations webpage. At the top, there is a NASA logo and the text "SBIR/STTR" in large, bold letters, with "Small Business Innovation Research / Small Business Technology Transfer" underneath. A search bar is located on the right side of the header. Below the header, there is a navigation menu with links: HOME, ABOUT SBIR/STTR, SOLICITATIONS, SCHEDULE & AWARDS, HANDBOOKS, MULTIMEDIA, and CONTACT US. The main content area is titled "NASA SBIR and STTR 2016 Program Solicitations" and includes the dates "Opened on November 12, 2015 and closed on February 01, 2016". A search bar is present with a "Search" button. Below the search bar, there are three tabs: "Views by Technology Area", "Views by Technology Taxonomy", and "Download Solicitation". The "Views by Technology Taxonomy" tab is selected, showing a list of links for various sections: Cover, Noteworthy Changes, Chapter 1: Program Description, Chapter 2: Definitions, Chapter 3: Proposal Preparation Instructions and Requirements, Chapter 4: Method of Selection and Evaluation Criteria, Chapter 5: Considerations, Chapter 6: Submission of Proposals, Chapter 7: Scientific and Technical Information Sources, Chapter 8: Submission Forms and Certifications, and Chapter 9: Research Topics for SBIR and STTR. On the right side, there are links for Appendix A: Technology Readiness Level (TRL) Descriptions, Appendix B: NASA SBIR/STTR Technology Taxonomy, Appendix C: SBIR/STTR and the Space Technology Roadmaps, and Amendments: Amendment 0001 to the Solicitation. At the bottom, there is a NASA logo and the text: "Curator: Samidha Manu", "NASA Official: Mr. Carlos Torrez", and "Last Updated: 27-Apr-2016".

# Mentor-Protégé Program



The NASA Mentor-Protégé Program encourages NASA prime contractors to assist eligible protégés in enhancing their capabilities to perform on NASA contracts and subcontracts, fostering the establishment of long-term business relationships between these entities and NASA prime contractors, and increasing the overall number of these entities that receive NASA contract and subcontract awards.

For more information on the Mentor-Protégé Program please visit: <http://www.osbp.nasa.gov/mpp/index.html>.

# Outreach Events

<http://sbir.nasa.gov/events>



Event Name	Dates	Location
HBCU/MI Event	August 3-4, 2016	Pasadena, CA
Small Satellite Conference	August 6-11, 2016	Logan, UT
GSFC HUB Zone Industry Day OSBP Council Meeting	August 9-11, 2016	Greenbelt, MD
SBIR Mid West Road Tour	August 15-19, 2016	Grand Forks, ND – Sioux Falls, SD – Ames, IA – St. Louis, MO – Indianapolis, IN
NSBE Aerospace Conference	August 24-27, 2016	Arlington, VA
NASA SBIR/STTR Subtopic Workshop	September 12-13, 2016	Moffett Field, CA
SCaN/SBIR Commercialization Workshop	Sept 14, 2016	Ames Research Center, CA
Small Business Association of New England	September 16, 2016	Waltham, MA
HCBU Road Tour for SBIR/STTR and Mentor-Protégé Program	September 27-29, 2016	Tallahassee, FL



The background of the entire image is a dramatic, low-angle shot of a Martian landscape. A bright sun is setting or rising in the center, creating a massive, colorful glow of orange, yellow, and red that fills the sky. The sun's rays are visible, cutting through the hazy atmosphere. In the foreground, a series of Mars rovers and a small human figure are silhouetted against the bright light. The rovers are positioned along a ridge or cliff edge, looking out over the vast, desolate plain. The human figure stands on the right side, looking towards the horizon. The overall mood is one of awe and exploration.

# THE EVOLUTION OF A MARTIAN

# How To Contact Us



- Online: [www.sbir.nasa.gov](http://www.sbir.nasa.gov)
- NASA Help Desk: 301.937.0888
- Email: [sbir@reisystems.com](mailto:sbir@reisystems.com)